

59. (New) The trolley control wheel assembly according to claim 47, wherein traction force requirements concerning a vertical position of said two fixed wheels are a substantial function of a mass of the trolley.

IN THE ABSTRACT:

Please substitute the new Abstract of the Disclosure submitted herewith on a separate page for the original Abstract presently in the application.

REMARKS

Reconsideration and allowance of this application are respectfully requested in view of the above amendment and the discussion below.

Applicant's invention concerns an improved central control wheel which uses a centrally located column assembly arrangement combined with a gas strut. Each of independent claims 21, 22, 30, 31, 36 and 41-47 concerns an assembly in the load center of the trolley or an assembly to provide controlled contact with the surface. Each claim also specifies that it includes a fixed wheel and a strut assembly for the wheel which is both a biasing means and a damping means.

The present invention is based on the realization that, for light trolleys or carts, a constant force is necessary for the control wheel because traction requirements of the vertical position of a control wheel for such trolleys are a substantial function of the mass of the trolley. That is, light trolleys must have a constant force regardless of the vertical travel or position of the control wheel so

that the control wheel will work properly regardless of whether the trolley is loaded or unloaded.

Newly added claims 48-59 depend from each of the independent claims and recite that the trolley is of the type where traction force requirements for the vertical position of the control fixed wheel are a substantial function of the mass of the trolley. It is this relationship which leads to the use of the strut assembly necessary to provide this constant force so that, whether the trolley is loaded or unloaded, it will steer properly. This constitutes the improvement over prior art trolley wheel system and particularly the prior art disclosed in the Background of the Invention and used in the outstanding rejection, both with respect to the showing of each of these references, of record and the non-obviousness of combining the references as will be discussed below.

Claims 21-47 have been rejected under 35 U.S.C. 102 as anticipated by the reference to Fullenkamp et al., U.S. Patent No. 5,348,326 for the reasons indicated at item 7 on pages 4 and 5 of the Patent Office Action.

Applicant respectfully traverses this rejection on the grounds that claims 21-59 provide structure which as a whole is not shown or disclosed or made obvious by the reference to Fullenkamp.

The reference to Fullenkamp 326 discloses a mechanism that provides a fixed or control wheel for hospital beds. It is at this point that applicants wish to once again emphasize that the mere fact of a control wheel is not Applicant's invention. Instead Applicant's invention is the improvement to such a fixed or control wheel. Fullenkamp has a column with integral mechanical springs. As discussed during a personal interview in the parent application, mechanical

springs do not function with light trolleys because of the large force variation during the spring travel. Additionally, the "gas strut" referred to in the rejection concerning Fullenkamp, is a gas strut used to "over centre" the foot petal engagement mechanism for a particular variation used with a swing arm control wheel mechanism in order to keep it engaged and to provide the biasing force for the disengaged position. In another variation, springs are used.

Fullenkamp does not disclose anything other than a spring for any of the variations shown for the column (i.e., central or fixed wheel). There is no disclosure in Fullenkamp to use a gas spring or strut instead of a mechanical spring in the column mechanism. Column 2 lines 29-31 of Fullenkamp concern the use of a gas spring with a swing arm mechanism and not a "fixed wheel" as claimed by applicants. The swing arm lifting mechanism of Fullenkamp is controlled so that it passes "over centre" and stays in the up or down position. The gas strut in the mechanism of Fullenkamp is not co-linear with the line of vertical travel of the control wheel and thus can not provide the required constant force to the control wheel. In direct contradistinction, the link mechanism of Fullenkamp, when resolved in free body diagrams, shows peak forces and minimum forces which is exactly the opposite of the required characteristics for light trolleys, i.e., constant force.

Thus Fullenkamp was not aware of the requirement for light trolleys to have a constant force regardless of the vertical travel position of the control wheel such that the control wheel works properly when the trolley is loaded or unloaded. Instead his work is restricted to heavy hospital beds because constant force is not essential on heavy trolleys where the traction force requirements

related to vertical position of the control wheel can be met without the mass of the trolley becoming an issue. Clearly the present invention is particularly addressed to the fact that traction force requirements are heavily dependant on the mass of the trolley.

In conclusion, the present invention discloses and claims a fixed wheel for a centrally located column with a gas strut whereas Fullenkamp discloses a swing arm or a column with a mechanical spring. Although not indicated in the rejection, applicants also submit that it is not an obvious variation to use a strut with a column of Fullenkamp because it is not necessary for such heavy object and therefore there is no reason to make such a change or substitution because any advantages obtained by using a strut will be negated in the heavy hospital bed application of Fullenkamp.

Claims 21-47 have also been rejected under 35 U.S.C. 103 as unpatentable over Lloyd in view of the admitted prior art as discussed at item 9 on pages 5 and 6 of the Patent Office Action. The rejection indicates that Lloyd lacks a self-contained gas strut and makes the often repeated conclusion that it would have been obvious to one of ordinary skilled in the art to replace the spring of Lloyd with the admitted prior art gas strut in order to provide counterbalance and force assistance to the fixed wheel.

Applicants traverse this rejection and only agree with the Examiner that applicants have not invented a gas strut. The essential aspect of the present invention is not the invention of a gas strut or the invention of a control wheel but is addressed to an improved control wheel for light weight trolleys. Applicants once again strongly urge that it is not obvious to automatically

assume the substitution of a gas strut would be made and used instead of a spring. The following analysis clearly indicates why such a substitution is not obvious.

The characteristics of a gas strut, as demonstrated during the personal interview in the parent application, are not the same as a spring. A gas strut provides no mechanical spring and a gas strut has force which is substantially constant over the distance traversed by the strut.

The first characteristics analyzed for the present invention, which lead to the use of the gas strut, are that the force characteristics which are required must not only maximize traction when the trolley is loaded but it also must prevent lift off when the trolley is empty. The rejection indicates that Lloyd has a "biasing and damping means 43". Applicants once again indicate that Lloyd does not disclose a "biasing and damping means". The document provides a "spring" on the second to last line of the abstract of British Patent GB 2232386 and a "compression spring" on page 4 at the third line of the last paragraph.

It is not obvious to substitute a gas strut for a spring in the reference to Lloyd because a spring does not provide a constant force in contrast to the gas strut which provides a constant source over the traveled distance. Looking at it from another perspective, if a spring functions for the reference to Lloyd why would he, or one skilled in the art, use a gas strut because a gas strut cost more and the disclosure of Lloyd provides no problem that could be better addressed by using a gas strut for a control wheel. Applicants invention requires a gas strut for a fixed wheel because of the recognition that the gas strut provides the ability to have a constant force over the traveled distance so that it would

function with the light carts of the applicants invention which depend heavily on whether or not they are loaded as to the traction force requirements. A spring won't do that for a light article. If a spring works for a heavy article then there is no reason to substitute a gas strut.

Once again applicants submit that each of the claims provide for a fixed wheel in the load center of the trolley using a self-contained gas strut and that the prior art of Lloyd have no gas strut or any damping means. Lloyd does not disclose damping and only uses mechanical springs. It is known to those skilled in the art that springs are "undamped". Damping in springs is known in the art as negligible.

With respect to the requirement for the priority noted on page 2 of the Patent Office Action, applicants submit that the transmittal letter sent on July 25, 2001 along with the filing of this application and the Preliminary Amendment clearly specified, at item 11, the insertion of continuation application for serial no. 08/945,017 and that priority was claimed for the Australian application filed on April 28, 1995 with a PCT application being filed on April 26, 1996. Thus, the requirement listed at item 2 has already been completed.

The objection to the specification contained at item 5 has been addressed by the enclosed new Abstract.

Therefore in view of the distinguishing feature between the claimed invention and the references of record which features are not shown or disclosed or made obvious by the references or any obvious combination of the references,

Applicant respectfully requests that this application, containing claims 21-59, be allowed and be passed to issue.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #1674/43755CO).

Respectfully submitted,

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